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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,305	08/25/2003	Edwin A. Suominen		5388

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EXAMINER	
BHATTACHARYA, SAM	
ART UNIT	**PAPER NUMBER**
2617	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/649,305	SUOMINEN, EDWIN A.	
	Examiner	Art Unit	
	Sam Bhattacharya	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *See Continuation Sheet* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *see attached*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1-4,7-14,17-23,25-30,33-39,41,44,46,47,49-55,58-61,63,65,69,70,73,74,77,78 and 81-158.

Continuation of Disposition of Claims: Claims rejected are 1-4,7-14,17-23,25-30,33-39,41,44,46,47,49-55,58-61,63,65,69,70,73,74,77,78 and 81-158.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of the Group I claims in the reply filed on 1/26/06 is acknowledged. The traversal is on the ground(s) that both the Group I and Group II claims can be directed to frequency translating of a signal in a receiver circuitry having inphase and quadrature paths. Since Applicant has amended the Group II claims by adding new claims 156-158 directed to receiver circuitry having inphase and quadrature paths, Examiner has withdrawn the restriction requirement in the previous Office Action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 8, 9, 12, 13, 54, 55, 58, 83, 84, 86, 87, 90-135 are rejected under 35 U.S.C. 102(b) as being anticipated by Olshansky et al. (US 5,134,509).

Regarding claims 1, 54, 55, 83, 92, Olshansky discloses a method for tuning a signal from a channelized spectrum having a predetermined channel spacing, including (a) mixing a signal of interest having a predetermined maximum bandwidth with a first local oscillator signal (see col. 8, lines 14-26); wherein (b) the first local oscillator signal has a frequency that is (1) one-half of a channel spacing displaced from an integer multiple of the channel spacing and (2) is selected to frequency translate the signal of interest to within a near-baseband passband whose

lower edge is spaced from DC by at least about the maximum bandwidth of the signal of interest or an integer multiple of the channel spacing, thereby reducing 1/f noise (see col 8, line 55 – col. 9, line 3).

Regarding claim 2, Olshansky discloses that the near-baseband passband is defined with reference to a lower frequency F1 and an upper frequency F2, wherein F1=F2-F1. See col. 9, lines 54-64.

Regarding claims 8, 9, 86, 87, 96, Olshansky discloses coarse-tuning the local oscillator signal by one local oscillator step from the first frequency to a second frequency an integral number of channel spacings from the first frequency wherein the second frequency is two channel spacings from the first frequency. See col. 8, lines 39-53.

Regarding claim 12, Olshansky discloses an apparatus for tuning, from a channelized spectrum having a predetermined channel spacing, a signal of interest having a predetermined maximum bandwidth, the apparatus comprising: (a) a local oscillator configured to generate a local oscillator signal at a frequency that is one-half of a channel spacing displaced from an integer multiple of the channel spacing; and (b) a mixer responsive to the local oscillator signal and the signal of interest, wherein the mixer frequency translates the signal of interest; wherein (c) the frequency-translated signal of interest falls within a near-baseband passband that is about a channel spacing wide and spaced from the DC offset by about a channel spacing. See col. 8, lines 14-26 and col 8, line 55 – col. 9, line 3.

Claim 13 incorporates the limitations of claims 2 and 12, and is therefore rejected for the same reasons as claims 2 and 12.

Regarding claims 58, 84, 90, 91, 93-95, 97-107, 109-111, Olshansky discloses that the lower edge of the near-baseband passband is spaced fro DC by about 1.5 to 2.5 times the channel spacing, which includes an integer multiple. See col. 9, lines 54-64.

Regarding claim 108, Olshansky discloses mixing a channel of interest with a first local oscillator signal comprising applying one local oscillator frequency of a set of local oscillator frequencies. See col. 8, lines 39-54.

Regarding claims 112 and 124, Olshansky discloses a tuning method including (a) defining a passband that is about a channel spacing wide, the lower edge of which is situated near baseband but spaced from DC by about an integer multiple of channel spacing or about a half-channel displaced from an integer multiple of channel spacing, and (b) frequency translating, with one local oscillator frequency of a set of local oscillator frequencies, a channel of interest from a channelized spectrum having a predetermined channel spacing, such that the center frequency of the frequency-translated channel of interest falls within the passband. See col. 8, lines 14-26, 35-39 and col 8, line 55 – col. 9, line 3.

Regarding claims 113-117 and 125-129, Olshansky discloses defining a passband that is wider than a channel spacing by a predetermined frequency adjustment. The frequency adjustment is static, has passband extending upper and lower edges of the passband by frequency adjustments, where the frequency adjustments are not necessarily equal. See col. 5, lines 48-65 and col. 6, lines 17-30.

Regarding claims 118 and 130, Olshansky discloses defining the passband whose center frequency has a spacing from DC that differs from an integer multiple of channel spacing or half-

channel displaced from an integer multiple of channel spacing by an amount determined by a frequency adjustment. See col 8, line 55 – col. 9, line 3.

Regarding claims 119-123 and 131-135, Olshansky discloses that the frequency adjustment is about half the channel spacing and the lower edge of the near-baseband passband is spaced fro DC by about 1.5 to 2.5 times the channel spacing, which includes an integer multiple. See col. 9, lines 54-64.

Allowable Subject Matter

4. Claims 19-23, 25-30, 33-39, 41, 44, 46, 47, 49-53, 65, 69, 70, 73, 74, 77, 78, 81, 82 and 136-158 would be allowable when the double patenting rejection of these claims is overcome.

5. Claims 3, 4, 7, 10, 11, 14, 17, 18, 59-61, 63, 85, 88 and 89 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and the double patenting rejection of these claims is overcome.

6. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to disclose the recited combination of elements in a method and apparatus for tuning, including mixing a channel of interest with first and second local oscillator signals where the frequency of the first local oscillator signal has a passband spaced from DC by about one channel spacing and the frequency of the second local oscillator signal is in quadrature relation to the first local oscillator signal, as set forth in the claims 3, 4, 7, 17, 18, 19-23, 25-30, 33-39, 41, 44, 46, 47, 49-53, 59-61, 63, 65, 69, 70, 73, 74, 77, 78, 81, 82 85 and 136-158; the prior art fails to disclose the recited combination, including the feature of a channel of interest that lies

within one of an upper high frequency spectrum of interest and a lower high frequency spectrum of interest, and providing spectrum coverage within one of the high frequency spectra of interest and not the other, as set forth in claims 10, 11, 14, 88 and 89.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1, 12, 19, 39, 65, 74, 83, 92, 112 and 124 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 6,427,068. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are directed to frequency translation in which a local oscillator frequency is an integer multiple of the channel spacing and the frequency-translated channel of interest falls within a near-baseband passband spaced from DC by a frequency offset of about a channel spacing.

9. Claims 1, 12, 19, 23, 39, 54, 65, 74, 83, 92, 112, 124 and 136 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,937,341. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are directed to frequency translation in which a local oscillator frequency is an integer multiple of the channel spacing and the frequency-translated channel of interest falls within a near-baseband passband spaced from DC by a frequency offset of about a channel spacing; moreover, claims 23, 54 and 136 are directed to frequency translation in a receiver having inphase and quadrature signal paths and respective mixers and oscillators in those paths.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Golan (US 5,826,180) discloses a near homodyne receiver having inphase and quadrature paths.

Barnard (US 4,965,853) discloses a receiver having a tunable bandpass filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Bhattacharya whose telephone number is (571) 272-7917. The examiner can normally be reached on Weekdays, 9-6, with first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571) 272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sb

GEORGE ENG
SUPERVISORY PATENT EXAMINER